IAP Penod / 3

1. Incident Name Cotton Patch Bayou-07	2. Operational Period From: 0800 9/10/07	d to be covered	by IAP (Date/Time) To: 0800 9/11/07	CG IAP COVER SHEET
3. Approved by Incident Commander(s):	1		•	
ORG NAME			a and mi	i., , , , , ,
USCG-Captáin Diehl /FOSCR-MS/O3	(illimon) +		3.829 9/	4/37
EPA Chris Ruhl	0.65			
TCEQ Walter Rodriguez MCTILL	. Cley 18	40 - 7/4	107	
RPIC Kelly Wilson	ay -		67	
		· · · · · · · · · · · · · · · · · · ·		ļ
The items checked b	NT ACTION elow are included in thi		Pláñ:	· ·
ICS 202-CG (Response Objectives)				
ICS 203-CG (Organization List) – OR – ICS 20	7-CG (Organization Ct	nart)		
ICS.204-CGs (Assignment Lists) One Copy each of any ICS 204-CG attachmen	ats:			
ICS 205-CG (Communications Plan)				
ICS 206-CG (Medical Plan)				
☐ ICS 208-CG (Site Safety Plan) or Note SSP Lo	ocation			
Map/Chart				
Wealther forecast / Tides/Currents				;
Other Attachments	•			
Process Water Treatment Plan				, .
Resource at Risk	•			
				. '
Storage Plan				
Disaster Scenarios and Response				
Press Release	•		·	-
⊠ <u>MSOS</u>				
	•.	•		
	•			
4. Prepared by: Tim Langford	Date/Tin 9/09/07 (

CG IAP COVER SHEET



1. Incident Name		AP Period 3 ORGANIZATION ORGANIZATION
Cotton Patch Bayou Release '0	7	From: 0800 9-10-07 To: 0800 9-11-07 ASSIGNMENT LIST ICS 203-CG
3. Incident Commander(s) and	Staff	7. OPERATION SECTION
Agency IC	Deputy	Chief Nick Benson
Kelly Wilson		Deputy USCG-David Orozco
Captain Diehl	USCG	Deputy USCG-Anthony Williams
Chris Ruhl	EPA	Staging Area Manager
Walter Rodriquez	TCEQ	Staging Area Manager
		Staging Area Manager
Safety Officer Henry H	Kana	
	Wolf / Melanie Miller	
Liaison Officer:		
		a. Branch – Division Groups
4. Agency Representatives		Branch Director
Agency Name		Deputy
EPA- Derrick Cobb		Keith Darnell
Start		Division Group Water Treat USCG- MSTC Tillimon
EPA- Chantelle Billiot		
Start Charlene Billiot		Division Group Pipeline Jim McClendon
		Roger Johnson
		Division Group Storage NOAA-C.Henry
		USCG-CMDR Kammer
		Division/Group Worst Broome
		Case USCG-Kammer
5. PLANNING/INTEL SECTION		b. Branch – Division/Groups
Chief Tim La	angford	Branch Director
Deputy		Deputy
Resources Unit		Division/Group
	angford	Division/Group
Intel Unit		Division/Group
i	-Charlie Henry	Division/Group
Documentation Unit Joan C		Division/Group
Demobilization Unit	· · · · · · · · · · · · · · · · · · ·	c. Branch – Division/Groups
Technical Specialists		Branch Director
USCG-C)rozeo	Deputy
FOB USCG-V	•	<i>р</i> ерику
USCG-F	Rightmyer	
6. LOGISTICS SECTION		Division/Group
Chief		Division/Group
Deputy	,	Division/Group
a. Support Branch		d. Air Operations Branch
Director		Air Operations Br. Dir
Supply Unit		Helicopter Coordinator
, Facilities Unit		
Transportation Unit	· · · · · · · · · · · · · · · · · · ·	8. FINANCE/ADMINISTRATION SECTION
Vessel Support Unit		Chief
Ground Support Unit		Deputy
b. Service Branch		Time Unit
Director	·	Procurement Unit
Communications Unit		Compensation/Claims Unit
Medical Unit		Cost Unit
Food Unit		. 3031 3111
· · · · · · · · · · · · · · · · · · ·	***	Date/Time
9. Prepared By: (Resources Un	it) · ·	Date/Time
Tim Langford		09-09-07 / 0930

1. Incident Name Cotton Patch Bayou Release 07			2. Operational Period (Date/Time) Assi					
	e U7 .			: 0800 09-11-07	ICS 204-CG			
. 3. Branch Recovery		4. Division/Grou Constructi	p/Staging on Group					
5. Operations Personnel	Nan	ne Af	filiation	Contact # (s)				
Operations Section Chief:	Nick Bensor	n 00	OPS	281-467-9808				
Branch Director:			9,		<u> </u>			
Division/Group Supervisor/STAM:	Jim McCler	idon Ac	rifos	713-823-3193				
6. Resources Assigned		•	"X" indicates	s 204a attachment with ac	ditional instructions			
Strike Team/Task Force/Resource Identifier	Leader	Contact In	reison	Deporting Info/	Notes/Remarks			
Back Hoe with Jackhammer	3J _{Ryan}	TBD						
Silt Dams	3JRyan	TBD		* A				
Rebar	3JRyan	TBD	1					
Personnel	3JRyan	TBD	10					
Concrete Forms	3JRyan	TBD	:					
Dirt	3JRyan	TBD						
Concrete to pour	3JRyan	TBD						
7. Work Assignments 1. Crews must deconstruct fai 2. Place silt dams into proper 3. Move pre-fabricated concre 4. Place Rebar in to proper loce 5. Pour Concrete	location te forms into pla		***	A				
8. Special Instructions			**					
Maintain safety and welfare of respondinimize adverse impacts on environ Report any injured or deceased wild Establish and monitor effective te	nment life to Agrifoss s	upervisor immediately	rs are completed.					
	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·				
9. Communications (radio and/or Name/Function		numbers needed for tr b: Freq./System/Channe		Cell/Page	ur.			
Nick Benson OSC		grifos Channel 1	281 - 467-9808	_	·············· .			
Jim McClendon		Simoo Onamitor 1	713823-319					
Emergency Communications					· · · · · ·			
Medical		uation	Olhe	· · · · · · · · · · · · · · · · · · ·				
10. Prepared by Tim Langford 09	Date/Time 9-09-07 1030	11. Reviewed by (PSC Tim Langford) Date/Time 09-09-07-1030	12. Reviewed by (OS	C) Date/Time			

1. Incident Name		2. Oper	ational Period (Da	ate/Time)	Assignment List
Cotton Patch Bayou Release	9 07 .	From: (0800	To: 2000	ICS 204-CG
3. Branch Protection		4. Division/Grou Wall Main			u#
5. Operations Personnel	Name	A	ffiliation	Contact # (s)	,
Operations Section Chief:	Nick Benson	OOF	PS	281-467-9808	
Branch Director:	<u> </u>			·	
Division/Group Supervisor/STAM:	Jim McClendon	Agri	fos	713-823-3193	<u>· </u>
6. Resources Assigned			"X" indica	tes 204a attachment with a	dditional instructions
Strike Team/Task Force/Resource Identifier	Leader	Contact Ir	nfo.# # o	Donortina Info	/Notes/Remarks
Wall Maintenance Crew	TBD	TBD	2		
Associated repair tools	TBD	TBD			
			•		
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	<u> </u>				П
		7.			
	,				
7. Work Assignments 1. Locate and identify additional see 2. Monitor and report leek rates to O Existing and newly discovered se 3. Apply mitigation method to seeps 4. Prep and initiate repairs if applicat 8. Special Instructions	perations Section C eps		*		
Once temporary repair must be mad Upon notification to the Site Safety C					:
		·		· · · · · · · · · · · · · · · · · · ·	
9. Communications (radio and/or page 19.1) Name/Function Nick Benson	Radio: Fr	nbers needed for the eq./System/Channe		**	er
Jim McClendon			713-823-319	3	
Emergency Communications Medical Henry Kana '832-647-8	3357 <u>·</u> Evacuatio	on	OI	her <u>911 – Emergency Servi</u>	ces
10. Prepared by	Date/Time 11.	Reviewed by (PSC) Date/Time	e 12. Reviewed by (OS	C) Date/Time

1. Incident Name		2. Operation	nal Period (Date/	Time)	Assignment	List
Cotton Patch Bayou Releas	e 07			0800 9-11-07	ICS 204	-CG
3. Branch Recovery		4. Division/Group/S Environmenta	taging Il Assessment G	roup	21 -	
5. Operations Personnel	Name	Affilia	tion	Contact # (s)		
Operations Section Chief: Branch Director:		OOPS		281-467-9808		
Division/Group Supervisor/STAM:		Agrifo	oss	281-733-7850		
6. Resources Assigned			"X" indicates	204a attachment with ac	Iditional instructio	ons
Strike Team/Task Force/Resource Identifier	Leader	Contact Info.	# of Persons	Reporting Info/	Notes/Remarks	+
EPA Personnel	Chantell Dillimt	832-347-3650	2		٧,	
USCG Personnel	MST Mijarez	915-329-7092	TBD			
Agrifoss Personnel	Roger Johnson	281-733-7850	TBD			
TCEQ Personnel	Walter Rodriguez	713-540-9496	TBD			
Benchmark Environment Group	Bob Davidson	281-934-3403 / 703	-7676 1			
US Fish and Wildlife	1		TBD			
	'					
	,					
	-					
7. Work Assignments 1. Completing environmental	site assessment		· · · · · · · · · · · · · · · · · · ·			
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8. Special Instructions		<u> </u>				
Please refer and follow site safety Utilize "Buddy System" when wall Be aware of environmental condit Report any injured or deceased wall	king within site area tions (Heat, Rain, Wild					
9. Communications (radio and/or Name/Function Henry Kana Site Safety Officer	Radio: Fre	pers needed for this of a second control of the second control of	essignment) Phone 832-647-835	Cell/Page	ir	
Emergency Communications Medical	Evacuation	n	Olher			
10. Prepared by Tim Langford 09	Date/Time 11. F	Reviewed by (PSC)	Date/Time 09-09-07-1050	12. Reviewed by (OS	C) Date/Ti	me

1. Incident Name	2. Or	perational Period (Da	ate/Time)	ASSIGNMENT LI	ST ATTACHMENT
Cotton Patch Bayou Release '07	1	n: 0800 9-10-07 To		``	ICS 204a-CG
3. Branch Disaster Scenarios and Response Plan Developm		4. Division/Group DSRP		•	•
5. Strike Team/Task Force/Resource (Identifier)		der . Broome	7. Assignment Agrifos Fertilize		
8. Work Assignment Special Instructions, Special Considerations, Special Site Specific Safety Co	Equipn Insidera	nent/Supplies Neede tions	d for Assignmen	t, Special Environme	ntal
Complete a DSRP Plan .		 			
Will include catastrophic failure and weather/operatio	n interru	ption procedures.	•		
Working group at draft stage, for submission on 9-11-	-07				
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Approved Site Safety Plan Located at: ICP			· · · · · · · · · · · · · · · · · · ·		
9. Other Attachments (as needed) Map/Chart We	eather F	orecast/Tides/Curre	nts 🗆		
10. Prepared by: Date/Time 11. F	Reviewe Langford		Date/Time 12.	Reviewed by (OSC):	Date/Time

1. Incident Name	2. Oper	rational Perio	od (Date/T	ime)	ASSIG	NMENT LIST	ATTAC	HMENT
Cotton Patch Bayou Release '07	D D-l 107						ICS 2	04a-CG
3. Branch Material Management		4. Division/ Disposal				V.	•	
5. Strike Team/Task Force/Resource (Identifier)	6. Lea	i der angford	. "		ment Location rtilizer facility			1
8. Work Assignment Special Instructions, Special Considerations, Special Site Specific Safety Considerations	l Equipnonsidera	nent/Supplies	s Needed	for Assign	ment, Special E	nvironmenta	al	
Locate disposal facilities that are able to process gy	osum wa	ter.	······································			-1		
Identify the parameters required for the gypsum water	er to be a	ccepted by th	e disposa	l facilities.				٠,
Report from working group forthcoming.					٠	,		
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Approved Site Safety Plan Located at: ICP								
9. Other Attachments (as needed) Map/Chart W	eather F	orecast/Tide	s/Current					,
10 Brownship Date 77: 114	Povious	od by (BSC):	D-	D	12. Reviewed t	w (OSC):		o/Time
	Langfor	ed by (PSC): d		te/Time 07 1020	14. Reviewed t	.y (USU):	, Dai	te/Time

1. Incident Name	2. Ope	rational Period (Dat	te/Time)	ASSIGNMENT LI	ST ATTACHMENT
Cotton Patch Bayou Release '07	From: 0800 09-10-07 To: 0800 09-11-07				ICS 204a-CG
3. Branch Material Management		4. Division/Group Transportation			•
5. Strike Team/Task Force/Resource (Identifier)	6. Lea Nick E	ader Benson	7. Assignme Agrifos Fertili	nt Location zer facility	
8. Work Assignment Special Instructions, Special Considerations, Special Site Specific Safety C			led for Assignme	ent, Special Environmer	ntal
Identify, evaluate and procure transportation for gyp	sum wate	er to a disposal facili	ty.		
-Determine best available transportation method for	the giver	n disposal location.	· ·		
-Consider tank barges, tanker, and/or pipeline.	٠.			•	
-Determine material specifications required by any v	essels us	sed.			
-Report from working group forthcoming.		• .			
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Approved Site Sefety Dies Leasted at 165		<u> </u>	· ·		·
Approved Site Safety Plan Located at: ICP 9. Other Attachments (as needed) Map/Chart D	Veather F	Forecast/Tides/Curr	ents 🗆		
	Reviewo Langfor		Date/Time 12 09-07 1020	?. Reviewed by (OSC):	Date/Time

1. Incident Name	2. Ope	rational Per	iod (Date/	Time)	ASSIC	NMENT L	ST ATTA	CHMENT
Cotton Patch Bayou Release '07	1	From: 0800 09-10-07 To: 0800 09-11-07				: 1	ICS	204a-CG
3. Branch Material Management		4. Division Treatment	n/Group	•	.,			
5. Strike Team/Task Force/Resource (Identifier)	6. Lea Robe	ader rt Johnson		7. Assignment Agrifos Fertilize	Location facility			
8. Work Assignment Special Instructions, Special Considerations, Special Site Specific Safety Considerations	al Equipr Considera	nent/Supplications	es Neede	d for Assignment	, Special I	nvironme	ntal	
Develop a Material Treatment Plan.								
-Consider disposal facilities requirements.								1.1.
-Consider transportation requirements			. ,					
-Report from working group forthcoming.					٠	2	٠-	
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Approved Site Safety Plan Located at: ICP								
9. Other Attachments (as needed) Map/Chart	Veather F	Forecast/Tid	les/Currer	nts 🔲				
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	Reviewe n Langfor	ed by (PSC):	: D	ate/Time 12.1 9-07 1020	Reviewed	by (OSC):	E	ate/Time
7.m. Langiord 09-09-07 1020 1111	. Langioi			5 5, 1020	•			

1. Incident Name	2. Operational	Period (Date/Time)	ASSIGN	MENT LIST ATTACHMEN
Cotton Patch Bayou Release '07		9-10-07 To: 0800 09-	11-07	ICS 204a-C
3. Branch Recovery	4. Divi	sion/Group ngency Storage	•	
5. Strike Team/Task Force/Resource (Identifier)	6. Leader Roger Johnso		gnment Location Fertilizer facility	
8. Work Assignment Special Instructions, Spec Considerations, Special Site Specific Safety	ial Equipment/Su Considerations	pplies Needed for Ass	ignment, Special Er	nvironmental
Continue to identify, evaluate and procure storage Agrifos to come up with workable solutions.	locations for Disas	ter Scenario and Respo	nse Plan . Work with	USCG Strike Team and
		· · · · · · · · · · · · · · · · · · ·	•	
Report from working group forthcoming: USCG CN	IDR Kammer will s	ubmit upon plan comple	etion.	• 7
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Approved Site Safety Plan Located at: ICP				
•	Weather Forecast]	·
	Povisional In 15	SC) Data/Time		
	Reviewed by (P m Langford	SC): Date/Time 09-09-07 1020		y (OSC): Date/Tim

1. Incident Name Cotton Patch Bayou Re		rational Period (Date / Time) 1800 9-8-07 To: 0800 9-9-07	COMMUNICATIONS LIST
3. Basic Local Commun	ications Information		
Assignment	Name	Method(s) of contact (radio frequ	ency, phone, pager, cell #(s), etc.)
USCG	David Orozco	915-383-6837	
USCG	Gilbert Mijarez	915-329-7092	
Agirfos	Robert Stewart	713-248-5189	· -
	Dick Nettles	281-382-4256	
	Praveen Jain	281-543-8188	· · · · · · · · · · · · · · · · · · ·
	Margaret Smith	423-653-0358	
Agrifos (Pipe / Const.)	Jim McClendon	713-823-3193	n 20
Agrifos (Storage / Env)	Roger Johnson	281-733-7850	
Agrifos	Rose Broome	281-923-2070	
	Tom Edwards	281-610-3403	·
	Casey Smith	601-807-7665	
O'Brien's (UC)	Kelly Wilson	713-503-6389	
USCG (Storage)	Virginia Kammer	251-776-2793	
NOAA (SSC)	Charlie Henry	206-849-9928	
	Mike Davis	713-409-2517	
EPA (UC)	Chris Ruhl	214789-9587	
USCG	Matt Tilimon	832-256-3261	·
·····	Chet Davis	251-776-2792	·····
O'Brien's (OPS)	Nick Benson	281-467-9808	
Agrifos (SSO)	Henry Kana	832-647-8357	
· · · · · ·	Steve Pierce	713-705-7043	
Media	Chuck Wolf	713-304-2912	
Agrifos (Treatment)	Keith Darnell	281-923-2064	
O'Brien's (Plan)	Tim Langford	281-330-9930	· · ·
HCPHES	Al Rushanan	713-740-8757	•
Agrifos (PIO)	Melanie Miller	713-594-9165	
TCEQ (UC)	Walter Rodriquez		· :
Media	Bob Gresser	713-562-3272	
USCG (Media)	LT Mark Molavi	832-256-2568	
Benchmark (Env)	Bob Davidson	281-834-3403 / 703-7676	
EPA (START)	Derrick Cobb	832-347-4180	
EPA (START)	Chantelle Billiot	832-347-3650	
	 		

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4. Prepared by: (Com Tim Langford	munications Unit)	Date / Time 1335 9-10-07	
COMMUNICATIO	NS LIST	ICS 205a-CG (Rev. 0	7/04)

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EMERCIENCY SAFETY and L.L. RESPONSE PLANTCORF D	entent Name CPBR-07	2. Date/Time Pregaget 3. Operation	. 1	& Affact 518 DS for such Chronics
The continuing the factor of t	Oity) Soft Wash [2] Denon Agron, Waler [2] Outer [2]	Bottle Eschauge Odder Saft Removal Inner Saft Removal SCDA/Misk Removal	SUBAMask Rinse Inner Glove Removal Work Clothes Removal Hody Shower	Intervening Steps Specify:
18. Site May I choice Work Zon	es, Locations of Hazards, Security	Perimeter, Places of Refinge, Decontamination	n Line, Evanualian Routes, A	asembly Point, Pirection of Hoth
Maintenl, Contrava Below:	•			
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O OHINE IN		APPORX CONFE	199 Section	W Cost Latter to any
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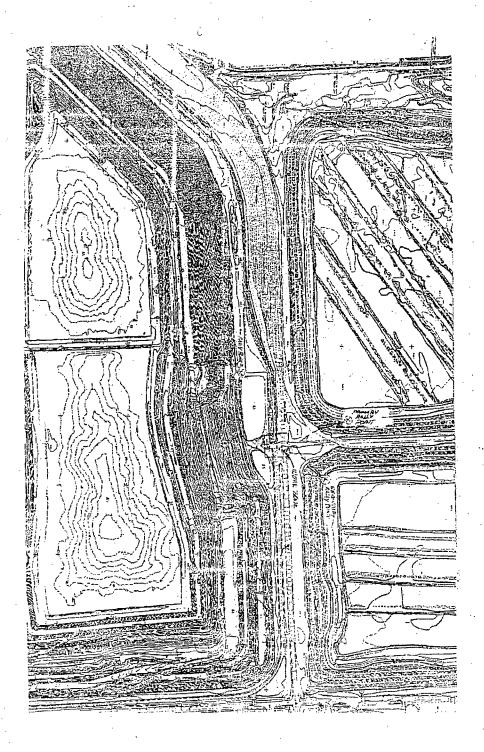
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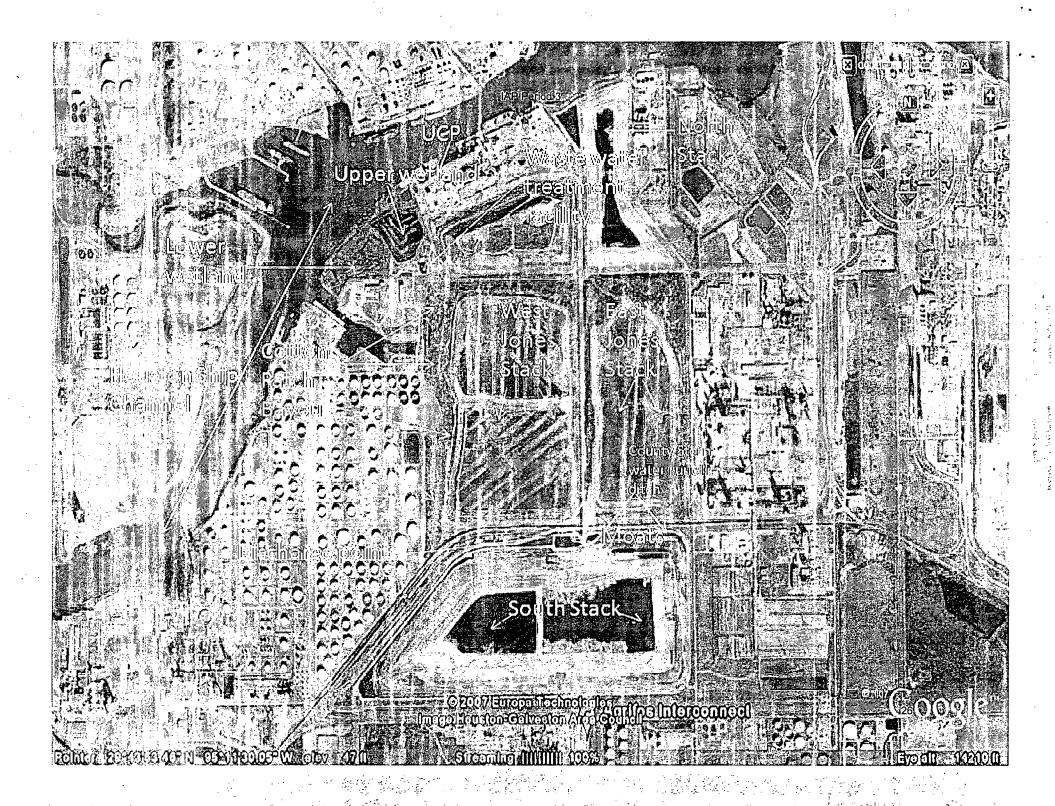
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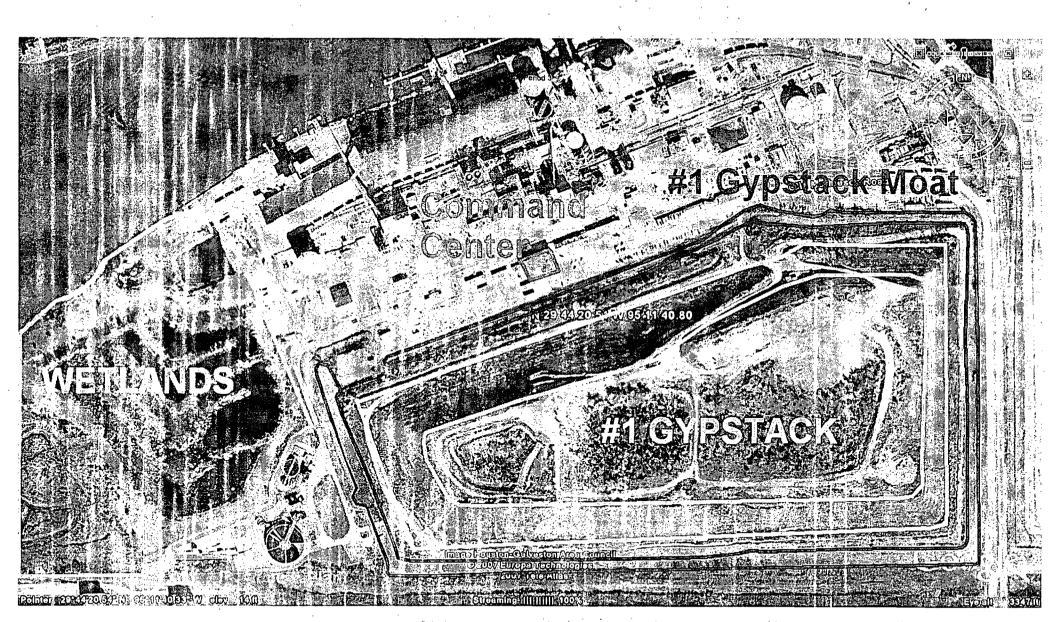
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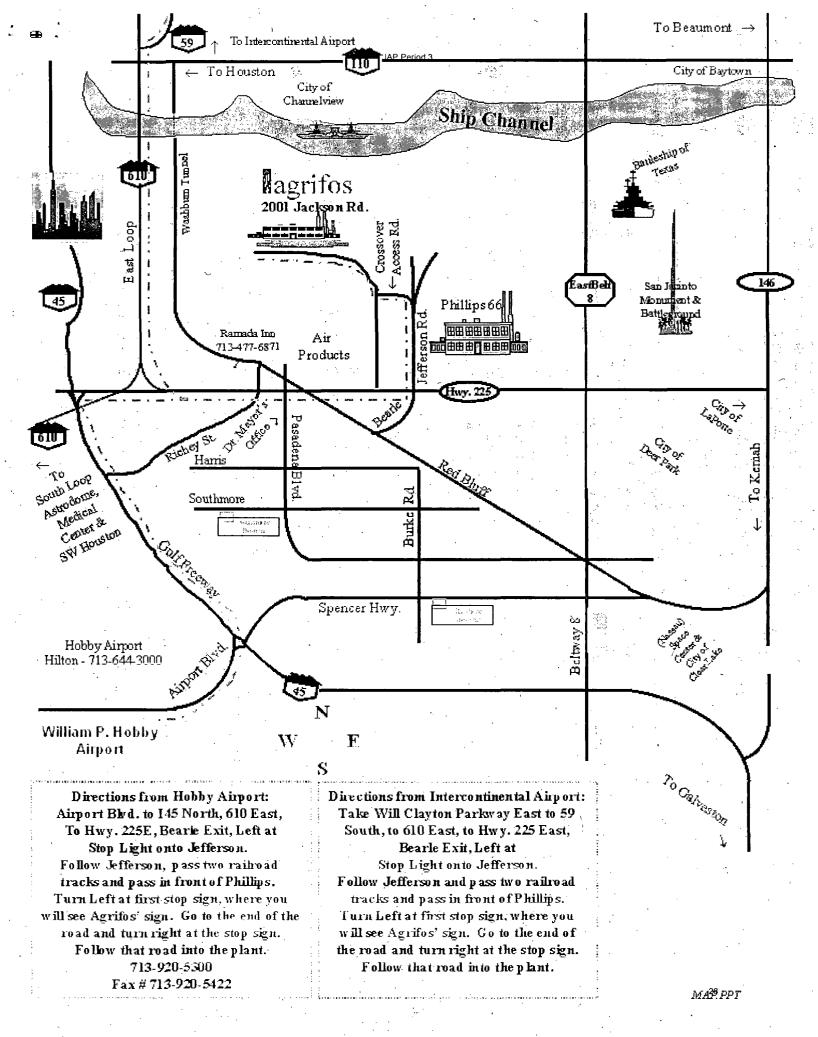
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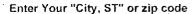






Your NELLONE

Houston, TX





Cell Phone Weather Link: www.srh.noaa.gov/wml En Español

Wednesday Wednesday

Last Update: 10:04 am CDT Sep 9, 2007

Forecast Valid: 12pm CDT Sep 9, 2007-6pm CDT Sep 15, 2007

NWS Houston, TX Point Forecast: Houston, TX 29.75N -95.37W

Forecast at a Glance This Afternoon Heavy

Rain Hi 93°F Heavy

Tonight

Rain Lo 76°F

Monday Slight Chc

Tstms Hi 93°F

Monday Night Slight Chc

Tstms Lo 76°F Tuesday 30% Chance Tstms

Hi 91°F

Night Chance

Tuesday

Tstms Lo 73°F

30% Chance

Tstms Hi 90°F

Night Slight Chc

Tstms Lo 73°F Chance

Thursday

Tstms Hi 90°F

Detailed / se

Hazardous weather condition(s):

Hazardous Weather Cuttock Short Terra Forecast

This Afternoon: Scattered showers and thunderstorms. Some of the storms could produce heavy rain. Partly cloudy, with a high near 93. Heat index values as high as 103. Southeast wind around 5 mph. Chance of precipitation is 50%.

Tonight: A 20 percent chance of showers and thunderstorms. Some of the storms could produce heavy rain. Partly cloudy, with a low around 76. Southeast wind around 5 mph becoming

Monday: A 20 percent chance of showers and thunderstorms. Partly cloudy, with a high near 93. Heat index values as high as 103. Calm wind becoming southeast around 5 mph.

Monday Night: A 20 percent chance of showers and thunderstorms. Partly cloudy, with a low around 76. South wind around 5 mph becoming calm.

Tuesday: A 30 percent chance of showers and thunderstorms: Partly cloudy, with a high near 91. Calm wind becoming west around 5 mph.

Tuesday Night: A 30 percent chance of showers and thunderstorms. Partly cloudy, with a low around 73.

Wednesday: A 30 percent chance of showers and thunderstorms. Partly cloudy, with a high near 90.

Wednesday Night: A 20 percent chance of showers and . thunderstorms. Partly cloudy, with a low around 73.

Thursday: A 30 percent chance of showers and thunderstorms. Partly cloudy, with a high near 90.

Thursday Night: A 20 percent chance of showers and

Container and the container

[Move Down]

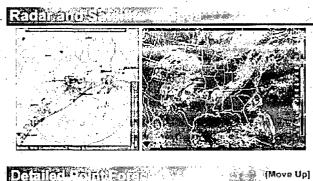
2 Day History.

Houston Hobby Airport Lat: 29.65 N Lon: 95.28 W Elev: 85 ft

Last Update on Sep 9, 10:53 am CDT

Humidity: 58 % Wind Speed: SE 6 MPH **Partly Cloudy** 29.99" (1015.8 mb) Barometer: Dewpoint: 73°F (23°C) 90°F Heat Index: 98°F (37°C). (32°C) 10.00 mi. Visibility:

More Local Wx:



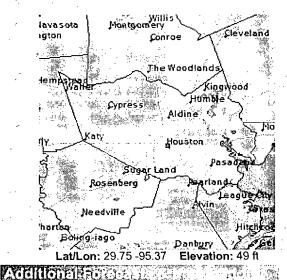
Click Map for Forecast

thunderstorms. Partly cloudy, with a low around 73.

Friday: A 30 percent chance of showers and thunderstorms. Partly cloudy, with a high near 91.

Friday Night: A 30 percent chance of showers and thunderstorms. Partly cloudy, with a low around 72.

Saturday: A 30 percent chance of showers and thunderstorms. Partly cloudy, with a high near 88.



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Zone Area Forecast for Harris County, TX
Air Quality Forecasts

Text Only Forecast About Point Forecasts

Tabular Forecast

Printable Forecast Text Forecast (°C) Hourly Weather Graph Forecast Discussion Tropical Weather Marine Information Rivers & Lakes AHPS Model Data

SE TX Climatology Fire Weather NOAA Weather Radio WWW Links SKYWARN

NWS Houston/Galveston Home

National Weather Service. Houston, TX

Back to previous page

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Locations within 5 miles of this point include...Houston TX...Southside Place TX...West University Place TX

Agrifos Fertilizer, Inc-Pasadena Operations

To: Niell Irvin

From: R. Keith Darnell

CC: Robert Stewart, Sa Tran, Jim McClendon, Margaret Smith, Darrell Raymond

Date: 9/9/2007

Re: Plan to Treat Process Water Using the Water Treatment Plant

1. Background.

- 1.1. General Arrangement The Water Treatment Plant is a "single lime" system. The waters collected from the North & South moats of the #1 Gyp Stack are pumped to the Lime Mix Tank, where the pH is taken up to 10 10.5. This tank gravity flows to the Acid Mix Tank, where the pH is adjusted with sulfuric acid to a dischargable level (typically about 6 7). This tank flows to the Reactor, which allows residence time for the precipitated species to grow in size for improved settling. This tank gravity flows to the Water Treatment Clarifier. The Clarifier flows through a parshall flume into the Effluent Tank, where it mixes with CNPW (contaminated non-process Water) before being pumped to the upper wetlands. Total flow as well as pH are monitored. Clarifier underflow (sludge) is pumped to the top of the west side of #1 gyp stack. Treated water from this sludge percolates though the stack and is eventually re-worked through the treatment system.
- 1.2. Hydraulic Capacity The system has an approximate maximum instantaneous hydraulic capacity (ability to flow liquids through the unit) of 1,050 GPM (1.5 MMGPD). The unit is typically operated about 40 hours a week to handle "normal" water flows. This translates to about 0.375 MMGPD. Potential available hydraulic capacity is therefore (1.5 -0.375) = 1.125 MMGPD or a 780 GPM rate. The actual treatment capacity will be limited by the ability to treat the process water to a level that is acceptable to the Unified Command.

2. Proposed Changes to Treat Process Water.

2.1. General Changes -

- 2.1.1 The South and North Moats will be treated as normal to get their level down as far as possible before introducing the process water through a valve off the return line from the South Gyp Stack system. This valve is located on the SE corner of the South Moat.
- 2.1.2. The discharge line which normally goes to the upper wetlands will be disconnected and a new HDPE line will be run to discharge at the 002 outfall weir.

- 2.2. **Determination of Treatment Rate** Saltiples of time slurry and process water were taken. The process water was neutralized to a pH of 4, 6, and 10. The sample taken to a pH of 10 was taken back to below 9, which is a ph level that meets discharge criteria. The treated samples were filtered and the filtrates will be analyzed for all parameters of Agrifos' TPDES permit. A majority of the analysis requires an outside laband results are expected back on Saturday afternoon. (The baseline numbers for the process water should be 24 hours later). With the initial results, the UC can decide which pH treatment level will be acceptable.
 - 2.2.1. Lime addition to the mix tank It is anticipated that this will be the initial bottleneck for treatment. Our current delivery system is capable of 40 60 GPM of flow to neutralize the acid. The flowing table shows theoretical treatment rates at various pH targets:

pH Target	Gal Ca(OH)2 Required per Gal of process water	Achievable treatment rates, GPM / (MMGPD)		
4	0.0625	640 – 960 / (0.922 – 1.382)		
6	0.167	240 – 359 / (0.346 – 0.517)		
 10	0.200	200 – 300 / (0.288 – 0.432)		

2.2.2. Lime shipments (assuming a nominal 5,000 gallons per load) will be in the order of 12 – 18 truckloads per day. The storage tank has a nominal capacity of 20,000 gallons or about 4 truck loads. We have two established vendors and are trying to secure others to ensure uninterrupted supply.

2.3. Potential Issues / Concerns -

- 2.3.1. Sludge Handling The process generates a sludge from the formation of calcium fluoride / calcium phosphate calcium sulfate. The underflow sludge from the clarifier is pumped to the top of the west end of #1 Gyp Stack, where the water percolates through the stack and goes back through the treatment system. The effect of increased sludge generation will have to be closely monitored & may limit treatment rates.
- 2.3.2. Staffing We three personnel which are current their training. This should be enough to commence a 24 / 7 operation. Longer term operation would require realignment and retraining of others.
- 2.3.3. Ammonia Levels in Effluent

 Our treatment system was never designed & is not set up to remove ammonia. It will definitely exceed our permitted levels.
- 2.3.4. Additional Rainfall The #1 Stack and areas of the processing plant are in our "contained watershed" and as such must be treated before release. Handling these rain events as they occur could slow our treatment of process water.

DRAFT, 8 Sept. 2007

Resources at Risk for Initial Evaluation of Proposed Treatment/Emergency Discharge Plan Associated with the Cotton Patch Bayou Acid Incident

I. Spill Source Information. The following Resources at Risk analysis was prepared as part of the trade-off discussion to consider an emergency discharge partially treated water from a gypsum stack area into the Houston Ship Channel near Pasadena TX. The discharge rate would be between 200,000 and 250,000 gallons per day of treated water. The proposed on-site treatment would mitigate the acidity of the phosphoric acid and reduce other permitted constitutes of concern to within permitted standards with the exception of ammonia. At a rate of 200 gallons per minute, the ammonia values would be near the daily maximum, and over a month period, the daily average would be exceeded. With the addition of some flow through water for additional dilution, the average concentration of ammonia is estimated to be between 40 and 60 ppm in the discharge effluent.

The gypsum stack is operated by Agrifos. Agrifos is a fertilizing facility that extracts phosphorus from mineral ores. The byproduct wastes include phosphoric acid, gypsum, fluoride, sulfates, and processed water, which are often stored as large piles of solids. Surrounding the pile at the facility is a moat that contains processed water that is normally recycled. The moat water has a pH of 2.0 or less, and is mostly phosphoric acid solution

- **II. Geographic Region Covered.** The area covered by this report extends for the entire length of the Houston Ship Channel.
- III. Biological Resources at Risk. The main resources at risk are aquatic fish and shellfish. Fish species likely to be present in the Houston Ship Channel include black drum, red drum, blue and channel catfish common carp, striped and white bass, southern flounder, and speckled seatrout (based on fish sampled for tissue quality). Blue crab and shrimp are also likely to be present. The ship channel is not likely to be an important area for spawning habitat or juvenile fish rearing. According to a 1997 book by Oborney, the inland portion of the Houston Ship Channel and its major tributaries have exhibited a history of conditions unsuitable to sustain populations of aquatic life. He states that wastewater treatment in the Houston area has continually improved since the late 1960s. It also appears that aquatic life conditions in the Houston Bayou System are improving. An area once referred to as a "biological desert" is now capable of sustaining populations of aquatic life. Therefore, there is a significant risk of fish and shellfish kills from the controlled release.

Ammonia:

According to the USEPA Ambient Water Quality Criteria for Ammonia (saltwater) published in 1989, available data on the acute toxicity of ammonia to 21 saltwater animals in 18 genera showed LC50 concentrations ranging from 0.23 to 43 mg NH3/L. Winter flounder is the most sensitive species, with a mean LC50 of 0.492 mg/L. The

mean acute sensitivity of 88 percent of the species tested was within a factor of ten of that for the winter flounder. Fishes and crustaceans are well represented among both the more sensitive and more resistant species; mollusks are generally resistant. For coastal marine or saltwater species, the available data provide no evidence that temperature or salinity have a major or consistent influence on the toxicity of NH3. Hydrogen ion concentration does increase toxicity of NH3 at pH below 7.5 in some, but not all species tested; above pH 8, toxicity may increase, decrease, or be little altered as pH increases, depending on species. Table 1 shows the USEPA water quality criteria for salt water aquatic life for ammonia.

Table 1. The maximum concentrations of total ammonia (TAN mg/liter) to protect fish health at 10 ppt seawater concentrations, based on EPA water quality criteria for ammonia (saltwater) published in 1989.

	Temperature °C		
	20	25	30
рН			•
7.0	62	. 44	29
7.6	16	11	7.7
8.0	6.4	4.6	3.1

The aerial extent of impacts will be a function of the dilution rate. If we estimated an emergency acceptable level of 10 ppm in the receiving stream (note, this value has not been determined acceptable at this time), ammonia concentrations would have to be rapidly diluted in the receiving stream by a factor of 5. With a dilution factor of 10 or more, the ammonia levels should drop below those likely to affect fish and shellfish. What is not known at present is what dilution rate can be expected over time in the Houston Ship Channel, i.e., what would be the footprint of toxic ammonia concentrations. NOAA is considering a model that would assess the proposed discharge (this option is still being investigated). There should also be an assessment as to any eutrophication issues, before seeking RRT approval.

Note this assessment was prepared as part of the emergency response to the Cotton Patch Bayou Response at the Agrifos Facility, Pasadena TX. This document has not been extensively reviewed, and is intended only for evaluation of emergency response options by the incident command. Prepared by Jacqui Michel, consultant, and Charlie Henry, NOAA Scientific Support Coordinator.

Storage Work Group Findings Cotton Patch Bayou Release 07 September 8, 2007

Work Group (WG) Members: Tom Edwards, Roger Johnson, and Jim McClendon from Agrifos; Coast Guard - Commander Gatlin from Sector Houston; Commander Kammer from the Gulf Strike Team; Rob Tennyson representing EPA; Kelly Wilson (RP IC) representing Agrifos.

Purpose: Examine and recommend storage alternatives to prevent future releases of phosphoric acid contaminated water to the environment.

Approach: The workgroup evaluated on-site and off-site storage options using an "expanding square" approach. The group brainstormed all potential options and their limitations. Planning and estimates are based on 35 million gallons – the minimum deemed essential to mitigating current high levels at the South Stack and Stack 4. We did not evaluate treatment options. We did not consider cost as a limiting factor. We did consider environmental, logistical, and operational issues in rating the storage options. The work group assigned a qualitative (best judgment of the work group) color rating to the storage options as follows: Red – not viable based on limitations; Yellow – possible but need UC decision and/or further evaluation; Green – best available.

On-site options:

- Add portable storage capacity on-site. The work group determined that it would take seven thousand (7,000) 5,000 gallon tanks (compatible with the pH 2 liquid) to store 35 million gallons. Benefits: eliminates "compounding effect" of open storage due to rain. Keeps substances completely contained from the environment. Limitations: Does not provide capacity flexibility. Acquiring, locating and managing the tanks present significant logistical issues. Rating: Red
- Create more moat space at base of the South Stack, especially at the east end. Benefits: none identified by the WG. Limitations: This was suggested at an early UC meeting. Removing soil or gypsum from near the retaining wall to allow more space for liquid is not recommended by the engineers. The failed area of the wall had a full soil layer against it when it suffered undermining effects; removing soil from other areas could lead to additional walls failures. There is no way to increase the wall height because of current high level of liquid. Rating: Red.
- Use moat space at Stack One (North and South moats) as temporary storage. Benefits: no significant benefits because capacity is only ~10% of minimum needed. Total capacity for both moats is approximately 4 million gallons. These moats are currently used to manage the facility's contact water which goes to the treatment plant for treatment and discharge. The facility needs some of this area to manage its contact water. These moats will also be needed if the throughput treatment option is approved by the UC. Rating: Red
- Pump contaminated water to West Jones Spoils Area w/ site improvements and liner. An engineering analysis has been conducted for this site for

containment and use as a gypsum stack. The site (Jones East and West) is already permitted for a gypsum stack. Benefits: Would gain 100 million gallons (maximum recommended operational level) of open storage capacity. Limitations: significant site improvements would need to be made to the site; a 200 ft set-back berm would be constructed; the containment wall would be increased by 10 vertical feet, and the "pond" would need to be lined with an HDPE liner. The holding pond would be subject to rain effects and would need to be actively managed to prevent overflow. The engineers estimated that site improvements would take 6 months if permitting and other logistical issues are addressed promptly. Rating: Yellow

- Pump contaminated water to West Jones Spoils Area w/ minimal site improvement and no liner. Benefits: Would give near-term relief of approximately 23 million gallons at a 1 foot depth level at the 70 acre site. Limitations: Soils are not suitable for unlined storage; the berms and outfall areas would need significant structural improvement even for a 1-2 foot capacity; rainfall would also need to be managed. This option could create long-term remediation issues due to soil permeability. A wildlife assessment may need to be conducted as well. Rating: Red
- Pump contaminated water to East Jones Spoils Area. Benefits: none identified by the WG. Limitations: Same as unlined Jones West location. This area would be significantly smaller than Jones West if an unlined option is considered further. Rating: Red
- **Process Area and Wetlands.** There is no viable storage in either of these areas.
- Stack Four. This area is already at maximum capacity (10 million gallons) and is part of the 35 million gallons we are trying to store at another location. Stack Four run-off is being pumped to the South Stack to minimize the chance of release at a second location.

Off-Site options:

Transport and store the contaminated water to another facility. The work group examined all neighboring facilities for storage capacity (Citgo, Magellan, Sheffield Steel; Kinder Morgan; Tessesderlo, Air Products, etc.). Limitations: None of the facilities have excess capacity, and there are no similar facilities to Agrifos; several of the local terminal companies are trying to expand their tankage locally but geography of the area is very limited. All the storage tanks identified are steel and are not compatible with the pH 2 water. The WG also discussed the possibility of using concrete containment areas if located, but none were identified. The WG deemed the likelihood of getting permission to store the liquid at another facility in an open-storage situation as extremely unlikely. Rating. Red

Note: the work group recommends inquiring with Gulf Coast Waste Disposal to see if they can store some liquid until treatment options are determined and implemented. Transportation of liquid is also a logistical issue. Rating: Yellow

Divert county ditch run-off and use ditch as emergency containment. This, was discussed but to fraught with problems to even rate. The storm run-off is unpredictable; the county would probably never agree; and the contaminated

- water would have to be pumped and treated quickly to minimize use of the ditch as a contingency.
- Use marine barges. The work group learned from Chief Tilimon that this option was considered but there are no marine barges available that are compatible with the material. It would take approximately 105 barges to hold approximately 25 million gallons and it would still have to be transported for treatment. Rating: Red
- Use rail cars. The work group determined it would take approximately 1700 rail cars to store 35 million gallons of water. Rating: Red

Conclusions and recommendations:

The work group did not find any easy or relatively quick storage solutions. It does make the following recommendations:

- Develop a proposal and plan for the Jones West Spoils Area "lined" option including a complete list of issues and timeline for building and using for UC consideration by close of business Monday September 10th.
- Have UC Engage EXXON-MOBIL and EPA to determine exact status of the pending injection well permit. Being able to use the well by October could improve the short-term situation.
- Continue to examine transport of contaminated water to Gulf Coast Waste Disposal facility via pipeline for storage and/or disposal.

Disaster Scenarios and Response

Worst Case Scenario - Catastrophic Stack Failure:

- Spill of full contents of Pond Water (170 million Gallons of 2% Phosphoric Acid) with wash of Phosphogypsum.
- Involvement of neighboring rail yard, GATX & Crown Central Petroleum tank farms, other neighboring plants (Kinder Morgan, Air Products, and potentially others.)

From historic spill on same site (different ownership):

Overview: On April 6, 1992, a 600-foot long section of retaining wall of a gypsum slurry pile failed at the Mobil Mining and Minerals facility in Pasadena, Texas, causing 45 million gallons of a 3 percent phosphoric acid and hydrated gypsum mixture to spill through a small bayou and into the Houston Ship Channel. Most of the material was released on that one day but leaking continued for several days. This mixture flooded control ditches, open fields, and bayous.

The spill caused significant injuries to freshwater, marine, and estuarine wildlife, fishes, invertebrates, plants and sediments. There was a significant loss of habitat for terrestrial and aquatic animals in the upland fields and drainage canals. There was also direct mortality to terrestrial animals, primarily ground-nesting birds, rodents, and reptiles. The injury to the surface waters was widespread. The spilled material had a Ph of 1.5. This adversely affected the water quality within approximately 7 miles of the Houston Ship Channel for at least one week.

NOAA http://www.darrp.noaa.gov/southeast/mobil/index.ittml

The current volume of pond water in the gypsum stack is approximately 3 times greater than the volume in 1992. The potential for impact upon neighboring industry and surrounding community has increased substantially.

Weather or Production Interruption Scenario – Water in Excess of Storage Capacity:

Normal operations of the production facility operate in such a way that pond water should see a routine net loss. Water from the ponds is utilized during the production process. While some water is returned to the stack in the form of slurry, more water is consumed than is returned. Because the stacks are open to the elements, rain increases the pond water levels. Excessive rainfall, particularly when coupled with work stoppage, could result in pond levels above safe levels. When pond water levels exceed safe levels (12 inches from top) wave action creates an erosive danger to the structural integrity of the gyp stack.

Preventive Actions

To prevent catastrophic failure, diminished structural integrity or overwash, it is imperative to maintain levels of pond water at a level no higher than 12 inches from top of the gypsum stack. During normal operations, pond water is transferred among ponds

and moats, and is consumed in production processes. In the event total pond water volume surpasses on site storage capacity, emergency interventions may be necessary.

Monitoring

To monitor the situation on an ongoing basis, Agrifos has o	leveloped a process to measure
and record water levels. Water levels in all stacks twice da	ily during daylight hours and
moats are measured 4 times per day. (See Map	for measurement locations.)
See Attachment for recording daily measurements	
these measurements?) Additionally the gyp stacks are asses	ssed daily for any breaches,
leaks, seepage or structural failure. (Is there a recording do	ocument for this assessment?)

Interventions

Treatment

Water may be treated in onsite treatment facility using established permitting already in place. There is concern about excess ammonia content for monthly average. Plan is to evaluate treating 200 gpm (288,000 gallons per day). Because this option would result in excess ammonia emissions, this is still under discussion. There is a potential for a temporary variance to allow release of this treated water into the Houston Ship Channel pending approval from TCEQ or Regional Response Team. Estimated timeline for variance consideration is Monday 9/10/2007.

Controlled Release

In the event immediate release of pond water is needed to prevent catastrophic failure of a gypsum stack, preparations are being made for a controlled release of untreated pond water on the West Jones Spoils Area. This area is shown on the attached map. The trigger for this action would be a weather event that would exceed the capacity of the moat at South Stack. Modifications of the West Jones Spoils Area are underway with an estimated date of completion ______

Response Plan

Catastrophic Failure

As per Emergency Preparedness Plan

- Person identifying problem dials 5555 or contacts security via radio to report problem.
- Security activates Emergency Siren System to call muster (sounds Emergency Siren followed by instruction for all staff to report to designated muster points. See Map for muster points)
 - Account for all staff based on In Plant Report. Check with Security for anyone signed out on the Stack Log.
- EOC is established in Administration Building

Notifications.

(The EOC call list from Emergency Preparedness Plan is attached as Appendix B)

- Shift Supervisor
 - o Dial 911
 - o National Response Center 800-424-8802
 - o Chemtell 800-832-8224
 - If event occurs outside of business hours, notify Agrifos Managers and Executives as listed in Emergency Preparedness Plan Section 21 Page 1.
- Notification of Neighboring Plants (May be handled by 911 Confirm)
 - o Air Products 713-477-6841
 - o Crown Central Petroleum 713-472-2461
 - o GATX
 - o Chevron Philips 713-475-3624
 - o Kinder Morgan 713-473-9271
 - o Williams Energy (Across Channel) 713-453-6301
 - o Gulf Stream Marine Security 713-926-7611
 - o Green Earth 713-477-4400
 - O Dynergy Zone 1 713-450-7200
- Environmental Manager contacts:
 - o LEPC (713) 473-7646
 - o EPA Region VI (214) 665-6444
 - Harris County Pollution Control Dept. 713-920-2831
 - o US Coast Guard (Spills) 800-424-8802
 - US Coast Guard Port of Houston 713-671-5100
 - Update CAER Hotline (713) 246-0301 Instructions in Emergency Preparedness Manual Section 13 Pages 4-7.

Evacuation

While risk to personnel in the immediate vicinity of the stack failure is great, the flow of pond water and gypsum slurry from a catastrophic failure would not be likely to inundate the main production facility at Agrifos. As such, no immediate evacuation of personnel would be necessary.

Controlled Release into West Jones Spoils Area

- (What is AGRIFOS procedure for internal decision making leading to the decision to pump into West Jones Spoils Area?)
- Notifications (Phone numbers for notifications are listed in the EOC Call List from Emergency Preparedness Plan attached as Appendix B)
 - Shift Manager Calls
 - Agrifos Managers and Executives according to Section 21, page 1.
 - Chemtell 800-832-8224
 - o Environmental Manager contacts:
 - LEPC (713) 473-7646
 - EPA Region VI (214) 665-6444
 - Harris County Pollution Control Dept. 713-920-2831
 - US Coast Guard (Spills) 800-424-8802
 - US Coast Guard Port of Houston 713-671-5100

Comment [p1]: Rose- Please obtain number for GATX

Comment [p2]: Confirm number for Green Earth. This is the # for the previous owner of that site.

AGRIFOS FERTILIZER INC. MATERIAL SAFETY DATA SHEET

Page 1 of 5 ** I. PRODUCT IDENTIFICATION *************** POND WATER SUPPLIER: 24-HOUR EMERGENCY (CALL COLLECT): AGRIFOS FERTILIZER INC.
CHEMICAL NAMES AND SYNONYMS: (713) 920-5431 CHEM TREC: PHOSPHORIC ACID/WATER (800) 424-9300 PRODUCT AND MSDS INFORMATION: USE OR DESCRIPTION: CONTAMINATED WATER (713) 920-5331 ********* II. TYPICAL CHEMICAL AND PHYSICAL PROPERTIES ******** ODOR: APPEARANCE: Clear Liquid Odorless pH: FOUR POINT F(C): FLASH POINT F(C): 2.4 VISCOSITY AT 40 C, CS: VISCOSITY AT 100 C, CS: NA NA. NA NA BOILING POINT F(C): SOLUBILITY IN WATER: Complete NE MELTING POINT F(C): VAPOR PRESSURE -mmHg 20 C:NE NA RELATIVE DENSITY, 15/4 C: NE VOC. NE NA = Not Applicable NE = Not Established D - Decomposes FOR FURTHER INFORMATION, CONTACT YOUR MAINLETING REPRESENTATIVE ----EXPOSURE LIMITS--NOTE ----TWA-------STEL--Wt.% Source ppm mg/m3 ppm mg/m3 CONTAMINATED WATER 100% COMPONENTS OF MIXTURE PHOSPHORIC ACID . (7664-38-2) OSHA ACGIH NOTE: Limits shown for guidance only. Follow applicable regulations. ************ DATA * --- INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED-EFFECTS OF OVEREXPOSURE: Strong eye irritation. Strong skin irritation

 $\mathcal{X}_{X} \in \mathcal{V}_{\mathcal{Y}} + \mathcal{Y}_{\mathcal{Y}} \times$

POND WATER ******** V. EMERGENCY AND FIRST AID PROCEDURES * - FOR PRIMARY ROUTES OF ENTRY --EYE CONTACT: Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance, SKIN CONTACT: Wash contact areas with soap and water. Remove contaminated clothing. Get medical assistance. Launder contaminated clothing before reuse. ATION: Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance and call a physician. If breathing has INHALATION: stopped, use mouth to mouth resuscitation. Do not induce vomitting. Give 1 to 2 glasses of water. Get medical assistance and call a INGESTION: physician immediately. Do not induce vomiting or give anything by mouth to an unconscious ********* VI. FIRE AND EXPLOSION HAZARD DATA ************* EXTINGUISHING MEDIA: Not applicable.

SPECIAL FIRE FIGHTING PROCEDURES: This material will not burn; however, use standard chemical fire fighting procedures and consider the hazards of other involved materials. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus. UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapors from hot material could form explosive mixtures Flash Point F(C): NA Flammable limits - LEL: NA UEL: NA Health: 2, Flammability: 0, Reactivity: 0 NFPA HAZARD ID: ************ DATA STABILITY (Thermal, Light, etc.): Stable CONDITIONS TO AVOID: Metals. Reaction of the material with metals can liberate flammable hydrogen gas. INCOMPATIBILITY (Materials to Avoid): Metals. Bases. HAZARDOUS DECOMPOSITION PRODUCTS: Phosphorus oxides. HARDOUS POLYMERIZATION: Will not occur. ENVIRONMENTAL IMPACT: Report spills as required to appropriate authorities. U. S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number (800) 424-8802. In case of needlent or road spill notify CHENTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Personnel performing cleanup must use

protective equipment. Absorb on fire retardant treated sawdust, diatomaceous earth, etc. Duspose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations,

WASTE MANAGEMENT: Dispose of waste at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

and product characteristics at time of disposal.

POND WATER

Page 3 of 5

**************** VIV. SPECIAL PROTECTION INFORMATION*********** VENTILATION: Use in well ventilated areas. RESPIRATORY PROTECTION: Approved respiratory protective equipment must be used in high vapor or mist concentrations. No special requirements under ordinary conditions of use and with adequate EYE PROTECTION: Chemical type goggles should be worn.

SKIN PROTECTION: Protective clothing such as uniforms, coveralls or lab coats should be worn. Impervious gloves should be worn. Chemical resistant apron should be worn when handling bulk quantities.

*********************** X. SPECIAL PRECAUTIONS *****************

HANDLING: Avoid all personal contact

MATERIALS MUST BE LABELED AS FOLLOWS: Causes eye irritation. Causes skin irritation.

--- ACUTE TOXICOLOGY ----

ORAL TOXICITY (RATS): Practically non-toxic (UD50: grenter than 2,000 mg/kg). Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS): Practically non-toxic (LI)50: greater than 2,000 mg/kg). Based on testing of similar products and/or the components.
INHALATION TOXICITY (RATS): Not established.

EYE IRRITATION (RABBITS): Strong irritant. (Draize score: greater than 35 but 55 or less). Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Strong irritent. (Primary Irritation Index: 5 or greater but less than 6). Based on testing of similar products and/or the components.

********************* XII. REGULATORY INFORMATION**

Governmental Inventory Status: All composionts comply with TSCA.

Transport Information: Please see Section λN .

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1916.1200 and determined to be hazardous.

RCRA INFORMATION: The unused product, in our opinion, is not specifically fisted by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic. teaching Procedure (TCLP). However, used product may be regulated.

U. S. Superfund Amendments and Reauthorization Act (SARA) Title III, this product contains no Extremely Hazardous Substances (EHS):

POND WATER

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SARA (311/312) REPORTABLE HAZARD CATEGORIES:

ACUTE

This product contains the following SARA (313) Toxic Release Chemicals:

CHEMICAL NAME PHOSPHORIC ACID

CAS NUMBER 7664-38-2

(COMPONENT ANALYSIS)

The following product ingredients are cited on the lists below:

CAS NUMBER

LIST CITATIONS 1, 10, 18, 19, 20, 21,

CHEMICAL NAMT:
PHOSPHORIC ACID
(COMPONENT ANALYSIS)

23, 24, 25, 26

10 = OSHA Z

17 = CA P 65

22 = MJ 293 23 = MN RTK

I = ACGIH ALL 2 = ACGIH A1 3 = ACGIH A2 4=NTP CARC

6= IARC 1 7= IARC 2A 8= IARC 2B 9 = OSHA CARC 14 = TSCA 6

18 = CA RTK 19 = FL RTK 20 = IL RTK 21 = LA RTK

24 = NJ RTK 25 = PA RTK 26 - RI RTK

5 - NTP SUS Code Key:

CARC = CARCINOGEN; SUS = SUSPECTED CARCINOGEN

NOTE: AGRIFOS PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

********** XIII. INGREDIENTS*********

15 = TSCA 12h

INGREDIENT

PERCENT

CAS NUMBER

PHOSPHORIC ACID

7664-38-2

CONTAMINATED WATER OTHER INGREDIENTS

********** XIV. TRANSPORT AND LABEL INFORMATION ***********

USA DOT:

SHIPPING NAME:

Environmentally y Hazardous Substances, Liquid, n.o.s. (contains PHOSPHORIC ACID)

HAZARD CLASS & DIV:

ID NUMBER: UN 3082

ERG NUMBER: PACKING GROUP: 31 PG III

STCC: DANGEROUS WHEN WET:

ΝE

POISON:

Νo

POND WATER

Page 5 of 5

 LABEL(S):
 Class 9

 PLACARD(S):
 Class 9

 PRODUCT RQ:
 217391 lbs. (contains PHOSPHORIC ACID)

 MARPOL III STATUS:
 NA

IMO:

SHIPPING NAME: No: Standard Practice HAZARD CLASS & DIV: NA ID NUMBER: PACKING GROUP: NA I.ABEL(S): NA NA MARPOL III STATUS: NA

ICAO/IATA:

SHIPPING NAME:
Not Standard Practice
HAZARD CLASS & DIV:
NA
SUBSIDIARY RISK:
NA
ID NUMBER:
PACKING GROUP:
NA
LABEL(S):
NA

REVISION DATE: 01/01/2007

INFORMATION GIVEN HEREIN IS OFFERED IN GOOD FAITH AS ACCURATE, BUT WITHOUT GUARANTEE. CONDITIONS OF USE AND SUITABILITY OF THE PRODUCT FOR PARTICULAR USES ARE BEYOND OUR CONTROL; ALL RISKS OF USE OF THE PRODUCT ARE THEREFORE ASSUMED BY THE USER AND WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SHITABILILITY OF THE PRODUCT. NOTHING IS INTENDED AS A RECOMMENDATION FOR USES WHICH INFRINGE VALID PATENTS OR AS EXTENDING LICENSE UNDER VALID PATENTS. APPROPRIATE WARNINGS AND SAFEE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS.

Prepared by: Agrifos Fertilizer Inc. P. O. Box 3447 Pasedena, TX 77501

POND WATER-MSDS.doc

MATERIAL SAFETY DATA SHEET Industrial Ground Gypsum

MSDS # 52-510-011 Page 1 of 8

United States Gypsum Company 125 South Franklin Street Chicago, Illinois 60680-4124 A Subsidiary of USG Corporation

Product Safety: 1 (800) 507-8899 mco.psu.www Version Date: October 8, 2003

PRODUCT: industrial Ground Gypsum

CHEMICAL FAMILY: Calcium Sulfate Dihydrate (CaSO4-2H2O)

OMPOSITION: INFORMATION ON INGREDIENT

TLV (mg/m²) CAS NUMBER MATERIAL PEL(mg/m³) Gypsum (CaSO4+2H2O) 100 **15 (ทิ) / 5 (ล)**์ 13397-24-5 Crystalline Silica 0.05(R) 0.1(R) 14808-60-7

(T) – Total (R) – Respirable (NE) – Not Established mmpfe - million particles per cubic foot of air Respirable crystalline silica: IARC: Group 1 carcinogen, NTP: Known human carcinogen. The weight percent for silica represents total quartz and not the respirable fraction. Testing of dust from USG gypsum powders has not detected respirable crystalline silica.

Food and Drug Administration [CFR Title 21, v.3, sec 184.1230] – Calcium Sulfate is Generally Recognized as Safe (GRAS).

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory. All components of this product are included in the Canadian Domestic Substances List (DSL).

SECTION: 8 HAZARD IDENTIFICATION:

INFORMATION FOR HANDLING AND IDENTIFICATION OF CHEMICAL HAZARDS

NFPA Ratings:

Health:

Fire: 0 Reactivity:

HIMS Ratings: Health:

Fire: Reactivity:

0 = Minimal Hazard

i = Slight Hazard 2 = Moderate Hazard

3 = Serious Hazard

0 Personal Protection: Use eye and skin protection. Use NIOSH/MSHA-approved respiratory protection when necessary. *Respirable crystalline silica can cause lung disease and/or cancer. E- Safety glasses, gloves and dust respirator

G

EMERGENCY OVERVIEW: This product is not expected to produce any unusual hazards during normal use. Exposure to high dust levels may invate the skin, eyes, nose, throat, or upper respiratory tract.

POTENTIAL HEALTH EFFECTS

Eyes: Airborne dust or direct contact can cause mechanical irritation of eyes. If burning, redness, itching, pain or other symptoms persist or develop, consult physician.

Skin: Direct, prolonged or repeated contact with the skin may cause irritation.



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SECTION 3 HAZARD IDENTIFICATION (continued)

POTENTIAL HEALTH EFFECTS

ACUTE (continued):

Inhalation: Dust exposures generated during the handling of the product may imitate eyes, skin, nose, throat, and upper respiratory tract. Persons subjected to large amounts of this dust will be forced to leave area because of nuisance conditions such as coughing, sneezing and nasal imitation. Labored breathing may occur after excessive inhalation. If respiratory symptoms persist, consult physician.

Ingestion: If ingested may cause temporary Irritation to the gastroIntestinal tract, especially the stomach. No known

CHRONIC:

Eyes: None known. Skin: None known.

Ingestion: No known effects.

Inhalation: Testing of dust from USG gypsum powders has not detected respirable crystalline silica. Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing.

Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. The risk of developing silicosis is dependent upon the exposure intensity and duration.

TARGET ORGANS: Eyes, skin and respiratory system.

PRIMARY ROUTES OF ENTRY: Inhalation, eyes and skin contact

SECTION 4

FIRST AID PROCEDURES

Eyes: In case of contact, do not rub or scratch your eyes. Flush thoroughly with water for 15 minutes to remove particles. If imitation persists, consult physician.

Skin: Wash with mild soap and water. A commercially available hand lotion may be used to treat dry skin areas. If skin has become cracked, take appropriate action to prevent infection and promote healing. If irritation persists, consult

Inhalation: Remove to fresh air. Leave the area of dust exposure and remain away until coughing and other symptoms subside. Other measures are usually not necessary, however if conditions warrant, contact physician.

Ingestion: This product is not intended to be ingested or eaten. No harmful effects expected. No specific recommendations. If gastric disturbance occurs, call physician.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED: Pre-existing upper respiratory and lung diseases such as, but not limited to, bronchius, emphysema and asthina. Pre-existing skin diseases such as, but not limited to, rashes and

FIRE FIGHTING MEASURES

General Fire Hazards:

Extinguishing Media:

Not expected to burn.

Special Fire Fighting Procedures: Unusual Fire & Explosion Hazards: Water or use extinguishing media appropriate for surrounding fire. Wear appropriate personal protective equipment (See section 8).

None

Hazardous Combustion Products:

Above 1450° C - decomposes to calcium oxide (CaO) and sulfur dioxide (SO₂)

MATERIAL SAFETY DATA SHEET Industrial Ground Gypsum

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SECTION STARE FIGHTING MEASURES (continued)

Flash Point: Method Used:

Upper Flammable Limit (UFL):

Lower Flammable Limit (LFL):

None Known Not Applicable Not Applicable Not Applicable Auto Ignition: Flammability Not Applicable

Classification:

Not Applicable

Rate of Burning:

Not Applicable

SECTION 6

ACCIDENTAL RELEASE MEASURES

CONTAINMENT:

No special precautions. Wear appropriate personal protection (See Section 8).

CLEAN-UP

Use normal clean up procedures. Wear appropriate protective equipment. Ventilate area. If dry, shovel or sweep up material from spitlage and place collected material into a container for recovery or waste disposal. Avoid dust generation. Avoid inhalation of dust and contact with eyes and skin. Maintain proper ventilation. If vacuum is used to collect dust, use an industrial vacuum cleaner with a high efficiency air filter. If sweeping is necessary, use dust suppressant. Do not use compressed air for clean up. These procedures will help minimize potential exposures. If washed down, may plug drains,

DISPOSA

Follow all local, state, provincial and federal regulations. Never discharge large releases directly into sewers or surface waters. Trace amounts of residue can be flushed to a drein, using plenty of water.

SECTION 7. HANDLING AND STORAGE

HANDLING

Minimize dust generation and accumulation. Avoid breathing dust. Wear the appropriate respiratory protection against dust in poorly ventilated areas and if TLV is exceeded (see Sections 2 and 8). Avoid dust contact with eyes, Wear the appropriate eye protection against dust (See Section 8).

Use good cafety and industrial hygiene practices.

STORAGE:

Store at room temperature in a dry location,

Keep containers closed when not in use

SECTION 8

EXPOSURE CONTROLS (PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide ventilation sufficient to control airborne dust levels especially respirable crystalline silica.

If user operations generate airborne dust, use ventilation to keep dust concentrations below permissible exposure limits (See Section 2).

Where general ventilation is inadequate, use process enclosures, local exhaust ventilation, or other engineering controls to control dust levels below permissible exposure limits (see Section 2). If engineering controls are not possible, wear a properly fitted NiOSH/MSHA-approved particulate respirator.



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SECTION (8-EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

RESPIRATORY PROTECTION:

Wear a NICSH/MSHA-approved respirator equipped with particulate cartridges when dusty in poorly ventilated areas, and if TLV is exceeded. A respiratory program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

OTHER PERSONAL PROTECTIVE EQUIPMENT:

Eye/Face: Wear eye protection (safety glasses or goggles) to avoid particulate imitation of the eye.

Skin: Gloves or protective clothing are usually not necessary but may be desirable in specific work altuations. For brief contact, no precautions other than clean body-covering clothing should be needed. Wear gloves and protective clothing to prevent repeated or prolonged skin contact. Barrior creams or skin lotion may be applied to face, neck, wrist and hands when skin is exposed to help prevent drying of skin.

General: Selection of Personal Protective Equipment will depend on environmental working conditions and operations.

∛PHYSI	CAL AND	ECTION S CHEMICA	L PROPI	ERTIES			
					_		 _

Appearance	While to off white	Viscosity	Not Applicable
Physical State	Solid (powder)	Solubility (H2O)	/ ~ 0.21 g/100 g solution
Odor	Low to no odor	Bolling Point	Not Applicable
pH @ 25 ° C	-7	Meiting Point	Not Applicable
Particle Size	Varies	Softening Point	Not Applicable
Molecular Weight	~172 g/mole	Freezing Point	Not Applicable
Bulk Density	~ 45-150 lb/ft ³	Vapor Density (Air = 1)	Not Applicable
Specific Gravity (H ₂ 0 = 1)	2.3-2.5	Vapor Pressure (mm Hg)	Not Applicable
Percent Volatile	Zero .	Evaporation Rate (BuAc = 1)	Not Applicable
VOC Content	Zero		

SECTION 10

CHEMICAL STABILITY AND REACTIVITY

STABILITY:

Stable.

CONDITIONS TO AVOID:

Contact with incompatibles.

INCOMPATIBILITY: HAZARDOUS POLYMERIZATION: Will not occur.

None known.

HAZARDOUS DECOMPOSITION: Above 1450° C - decomposes to calcium oxide (CaO) and sulfur dioxide (SO2

TOXICOLOGICAL INFORMATION:

ACUTE EFFECTS:

Direct contact may cause eye, skin and/or respiratory irritation.

LD₃₅ Not Available for product.

LC₅₀: Not Available for product



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SECTION 11/TOXICOLOGICAL INFORMATION (continued)

CHRONIC EFFECTS / CARCINOGENICITY:

Crystalline silica: Testing of cust from USG gypsum powders has not detected respirable crystalline silica. Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing.

Protonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. The risk of developing silicosis is dependent upon the exposure intensity and duration.

In June, 1997, IARC classified crystalline silica (quartz and cristobalite) as a human carcinogen. In making the overall evaluation, the IARC Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.

IARC states that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

SECTION 12 ECOLOGICAL INFORMATION:

ENVIRONMENTAL TOXICITY: This product has no known adverse effect on the ecology. A large discharge directly into waterways would not be expected to kill aquatic life. Ecotoxicity value: Not determined.

SECTION 13 SECTION 13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

Dispose of material in accordance with Federal, State, Provincial, and Local regulations. Consult with environmental regulatory agencies for guidance on acceptable disposal practices. Never discharge directly into sewers or surface

SECTION 14 TRANSPORTINEORMATION.

U.S. DOT INFORMATION: Not a hazardous material per DOT shipping requirements. Not classified or regulated.

Shipping Name

Same as product name.

Hazard Class:

No! classifièd

UN/NA #:

Packing Group:

None. Not classified. None.

Label (s) Required:

Not applicable.

GGVSec/MDG-Code:

Not classified

ICAO/IATA-DGR:

RID/ADR:

Not applicable.

ADNR:

None None



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SECTION 15 REGULATORY INFORMATION:

UNITED STATES REGULATIONS

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory.

MATERIAL		 WT% 	302	304	313	CERCLA	CAA Sec. 112	RCRA Code
Gypsum (CaSO4 • 2H2O)		100	NL	NL	NI.	NI.	NL	NE
Crystalline Silica	 	<1	ŊL	M	NL	NL	NI.	NL

NL = Not Listed

SARA Title III Section 302 (EPCRA) Extremely Hazardous Substances: Threshold Planning Quantity (TPQ) SARA Title III Section 304 (EPCRA) Extremely Hazardous Substances: Reportable Quantity (RQ) SARA Title III Section 313 (EPCRA) Toxic Chemicals: X= Subject to reporting under section 313

CERCLA Hazardous Substances: Reportable Quantity (RQ)

CAA Section 112 (r) Regulated Chemicals for Accidental Release Prevention: Threshold Quantities(TQ)

RCRA Hazardous Waste: RCRA hazardous waste code



Food and Drug Administration [CFR Title 21, v.3, sec 184.1230] - Calcium Sulfate is Generally Recognized as Safe (GRAS).

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. All components of this product are included in the Canadian Domestic Substances List (DSL).

MATERIAL	WT%	IDL Item#	WHMIS Classification:
Gypsum (CaSO4 • 2H2O)	1.30	Not Listed	Not Listed
Crystalline Silica	<1	1405	D2A

IDL Item#: Canadian Hazardous Products Act - Ingredient Disclosure List Item# WHMIS Classification: Workplace Hazardous Material Information System

CARCINOGENICITY CLASSIFICATION OF INGREDIENT(S)

All substances listed are associated with the nature of the raw materials used in the manufacture of this product and are not independent components of the product formulation. All substances, if present, are at levels well below regulatory limits. See Section 11: Toxicology Information for detailed information.

MATERIAL	IARC	NTP	ACGIH	CAL- 65	
Respirable Crystalline Silic		! 1	, A2	Listed	

IARC - International Agency for Research on Cancer (World Health Organization)

- 1- Carcinogenic to humans
- 2A Probably carcinogenic to humans
- 2B Possibly carcinogenic to humans
- 3 Not classifiable as a carcinogen
- 4 Probably not a carcinogen



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SECTION: 15 REGULATORY INFORMATION (continued)

NTP - National Toxicology Program (Health and Human Services Dept., Public Health Service, NIH/NIEHS)

- 1- Known to be carcinogen
- 2- Anticipated to be carcinogens

ACGIH - American Conference of Governmental Industrial Hygienists

- A1 Confirmed human carcinogen
- A2 Suspected human carcinogen
- A3 Animal carcinogen
- A4 Not classifiable as a carcinogen
- A5 Not suspected as a human carcinogen

CAL-65 - California Proposition 65 "Chemicals known to the State of California to Cause Cancer"

SEGITION 164 FOR SECULOR SECUL OTHER INFORMATION

AWARNING!

Dust created from product may cause eye, skin, nose, throat or upper respiratory irritation. Avoid inhalation of dust and eye contact. Use in a well-ventilated area. Wear a NIOSH/MSHA-approved respirator when dusty. Use proper ventilation to reduce dust exposure. Wear eye protection. If eye contact occurs, flush thoroughly with water for 15 minutes. If irritation persists, call physician. Wash thoroughly with soap and water after use. Do not ingest. If ingested,

Product safety information: (800) 507-8899 or www.usq.com KEEP OUT OF REACH OF CHILDREN.

Key/Legend

TLV	Threshold Limit Value
DEL	Darmicalhia Evangura Lia

Chemical Abstracts Service (Registry Number) CAS National Institute for Occupational Safety and Health NIOSH

MSHA Mine Safety and Health Administration

OSHA Occupational Health and Safety Administration

American Conference of Governmental Industrial Hygienists **ACGIH**

IARC International Agency for Research on Cancer United States Department of Transportation DOT United States Environmental Protection Agency EPA NEPA National Fire Protection Association Hazardous Materials Identification System HMIS

P₽≣ Personal Protection Foultement Toxic Substances Control Act. TSCA Canadian Domestic Substances List DSL Canadian Non-Domestic Substances List NDSL

SARA Superfund Amendments and Reauthorization Act of 1985

Resource Conservation and Recovery Act RCRA

CERCLA Comprehensive Environmental Response, Compensation and Liability Act of 1980

UN/NA# United Nations/North America number

Code of Federal Regulations CER

Workplace Hazardous Material Information System WHMIS



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SECTION 16 OTHER INFORMATION (continued)

Prepared by: Product Safety USG Corporation 125 South Franklin St. Chicago, Illinois 60606

END